

Appl. No. 10/714,207
Reply to Office Action of January 27, 2007

Attorney Docket No. 2003-0442 / 24061.519
Customer No. 42717

REMARKS

Claims 1-2 and 5-10 are present in the application. In view of the remarks that follow, Applicants respectfully request reconsideration.

Independent Claim 1 -- §102 and Yeh

Independent Claim 1 stands rejected under 35 U.S.C. §102 as anticipated by Yeh U.S. Patent No. 6,207,565. This ground of rejection is respectfully traversed, for the following reasons.

UNDER §102, ALL CLAIM ELEMENTS MUST BE PRESENT IN ONE EMBODIMENT

If a reference discloses multiple embodiments, then in order to anticipate a claim under §102, the elements in the claim must all be present in one of the disclosed embodiments. In more detail, MPEP §2131 specifies that, under §102, each and every element of a claim must be found in a single prior art reference, and also specifies that "The elements must be arranged as required by the claim". This PTO requirement reflects decisions by the PTO Board of Appeals, and also the courts. For example, on this point of law, MPEP §2131 cites *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990), which in turn cites *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 221 USPQ 481, 485 (Fed.Cir. 1984), and *Lindemann* in turn cites *Connell v. Sears Roebuck & Co.*, 220 USPQ 193 (Fed.Cir. 1983). These three cases all reflect the fact that the Court of Appeals for the Federal Circuit has repeatedly held that:

Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim.

Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co., 221 USPQ 481, 485 (Fed.Cir. 1984), citing *Connell v. Sears Roebuck & Co.*, 220 USPQ 193 (Fed.Cir. 1983), emphasis added.

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In *Lindemann*, the Federal Circuit struck down a finding of anticipation under §102, emphasizing that the underlying analysis was erroneous to the extent it "treated the claims as mere catalogs of separate parts, in disregard of the part-to-part relationships set forth in the claims and that give the claims their meaning". *Lindemann* at 486.

Within the Patent Office, the Board of Appeals adheres to precisely the same requirement. For example, in an application filed by an inventor named Gould, an examiner rejected claims under §102 as anticipated by a "Partington" reference. Gould appealed, and the examiner lost. In particular, the PTO Board of Appeals reversed the examiner's rejection, holding that:

Gould has argued throughout the prosecution of this case that, while all the elements of his claimed device were known (and are shown in Partington), the elements were not arranged in the manner required by the claims. We agree.

Ex parte Gould, 6 USPQ2d 1680, 1682 (Bd. Pat. App. & Int'f. 1987), emphasis added.

In the present application, the §102 rejection based on the Yeh patent does not satisfy this legal requirement. Yeh discloses several different embodiments, and the Office Action selectively extracts isolated elements from at least three of these embodiments. In more detail, (1) the "Background" section in column 1 of Yeh discusses a pre-existing embodiment that is not part of Yeh's invention, (2) Figures 1-8 of Yeh disclose a first embodiment of Yeh's invention, and (3) Figure 9 discloses a second embodiment of Yeh's invention. In the Office Action, the §102 rejection of Claim 1 is explained in the last paragraph on page 2, and this explanation includes citations to all three of these embodiments, as follows:

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EMBODIMENTS IN YEH	CITATIONS IN REJECTION
(1) Pre-Existing Embodiment Discussed in Background	Column 1, lines 35-53.
(2) Embodiment of Figures 1-8	Figure 6; column 5, lines 50-67.
(3) Embodiment of Figure 9	Figure 9; column 6, line 47 through column 7.

The Office Action does not take the position that one of these three different embodiments contains all of the elements that are recited in Applicants' Claim 1. In other words, the Examiner has not established that one embodiment of Yeh, considered by itself, discloses "each and every element of the claimed invention, arranged as in the claim". The §102 rejection in the present application thus fails to meet the requirement (1) that was established by the Federal Circuit in *Bond, Lindermann, and Connell*, (2) that was applied by the PTO Board of Appeals in *Gould*, and (3) that is set forth by PTO management as a formal policy in MPEP §2131. Consequently, Claim 1 of the present application is not anticipated by the Yeh reference for precisely the same reason that, in *Ex parte Gould*, the claims of Gould were not anticipated by the Partington reference. Combining multiple embodiments is not permitted under §102, because it always involves questions of obviousness under §103, regardless of whether the embodiments are in different references, or in one reference.

Since the present Office Action presents a §102 rejection that combines at least three different embodiments, and since this approach is strictly prohibited by the courts, by the PTO Board of Appeals, and also by PTO management, the §102 rejection is defective and improper, and it is respectfully submitted that it must be withdrawn.

YEH DOES NOT DISCLOSE ALL ELEMENTS RECITED IN CLAIM 1

As mentioned above, the PTO specifies in MPEP §2131 that, in order for a reference to anticipate a claim under §102, the reference must teach each and every element recited in the claim, and those elements must all be arranged as recited in the claim. In the present situation,

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Yeh does not disclose all of the elements that are recited in Claim 1. In this regard,
Claim 1 recites:

- (a) performing an oxygen ashing step to remove said patterned photoresist layer;
 - (b) cleaning a residue from said opening by performing a halogen containing plasma step; and
 - (c) etching said cleaned opening in said substrate;
- wherein steps (a), (b), and (c) are performed in the same process chamber of said etching tool.

Of the various different embodiment disclosed in Yeh, the Examiner seems to rely primarily on the embodiment shown in Figure 9. In Figure 9, block 904 shows an oxygen ashing step that Yeh carries out in order to remove the photoresist shown at 208 in Figure 3. The Examiner is apparently asserting that block 904 is comparable to step (a) in Applicants' Claim 1. In Figure 9 of Yeh, after the photoresist has been removed in block 904, Yeh proceeds to blocks 906 and 908. In blocks 906 and 908, Yeh carries out two different steps to remove contaminants (310 in Figure 3) that were formed during the oxygen ashing in block 904. The Examiner is apparently asserting that blocks 906 and 908 are comparable to step (b) in Claim 1.

It should be noted that, after blocks 906 and 908, Figure 9 of Yeh does not show any subsequent step that involves etching of any other structure. In other words, Figure 9 does not show any process comparable to step (c) of Claim 1. Thus, the embodiment shown in Figure 9 of Yeh does not disclose each and every element that is recited in Claim 1, and therefore does not anticipate Claim 1 under §102.

A further and separate consideration is that, since Figure 9 fails to disclose an etching process comparable to step (c) of Claim 1, the embodiment of Figure 9 also necessarily fails to teach or suggest that a single process chamber could be used for each of three different process

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steps that are respectively comparable to steps (a), (b) and (c) in Applicant's Claim 1. In fact, in a different part of the Office Action (lines 2-3 on page 3), the Examiner expressly admits that Yeh does not disclose this. In view of this admission that Figure 9 of Yeh does not disclose each and every element recited in Claim 1, it is respectfully submitted that the §102 anticipation rejection based on Yeh has no reasonable basis, and should not have been included in the Office Action.. Moreover, it does not appear that any other embodiment of Yeh, considered by itself, discloses all of the elements that are recited in Claim 1. In other words, it is respectfully submitted that Yeh does not appear to disclose any embodiment that completely anticipates Claim 1 under §102. Notice to that effect is respectfully requested.

Independent Claim 1 -- §103 and Yeh

Independent Claim 1 stands rejected under 35 U.S.C. §103, on the theory that it would be obvious in view of the Yeh patent. This ground of rejection is respectfully traversed. In this regard, the PTO specifies in MPEP §2142 that:

The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness.

Applicants respectfully submit that Yeh fails to establish a *prima facie* case of obviousness under §103 with respect to Claim 1, for the following reasons.

YEH DOES NOT DISCLOSE WHAT THE OFFICE ACTION SAYS IT DOES

In the Office Action, the first paragraph on page 3 explains the §103 rejection of Claim 1. In lines 2-3 on page 3, the Examiner admits that the embodiment shown in:

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Figure 9 of Yeh does not state that "steps (a), (b), and (c) are performed in the same process chamber of the etching tool" as recited in claim 1.

In an effort to cure this defect in the embodiment of Figure 9 of Yeh, the Examiner turns to a different embodiment shown in Figure 6 of Yeh. The Examiner asserts that:

Figure 6 of the same Yeh clearly teaches . . . performing the steps (a), (b), and (c) in the same plasma process chamber of the etching tool

However, Applicants respectfully traverse this assertion, because this is not what is shown in Figure 6 of Yeh. More specifically, referring to Table I in Figure 6, steps 4 and 5 constitute an oxygen ashing process used to remove a photoresist. As best understood, this is equivalent to the ashing process in block 904 of Figure 9. Therefore, as best understood, the Examiner is asserting that steps 4 and 5 in Figure 6 of Yeh are equivalent to step (a) in Applicants' Claim 1. But after step (a), Claim 1 goes on to recite an additional step (b), followed by a further step (c), and then recites that steps (a), (b) and (c) are all carried out in the same process chamber. In contrast, Table I in Figure 6 of Yeh does not show any additional steps after the oxygen ashing in steps 4 and 5. Consequently, there is no basis for the Examiner's assertions that Figure 6 of Yeh shows (1) steps equivalent to steps (b) and (c) of Applicants' Claim 1, and also (2) that a single process chamber is used to carry out successive steps that are respectively equivalent to steps (a), (b) and (c) in Claim 1.

Accordingly, even if the embodiment shown in Figure 9 of Yeh is modified in view of the embodiment shown in Figure 6, as proposed by the Examiner, the result would not be the subject matter that is recited in Applicants' Claim 1. Claim 1 is therefore not rendered obvious under §103 by Yeh, and notice to that effect is respectfully requested.

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Independent Claim 1 -- §103 and Chen, Yeh and Yang

Independent Claim 1 stands rejected under 35 U.S.C. §103, on the theory that it would be obvious in view of a proposed combination of teachings from (1) Chen U.S. Patent No. 6,025,273, (2) Yeh U.S. Patent No. 6,207,565, and (3) Yang U.S. Patent No. 6,221,772. This ground of rejection is respectfully traversed. In this regard, as noted above, the PTO specifies in MPEP §2142 that:

The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness.

Applicants respectfully submit that Chen, Yeh and Yang fail to establish a *prima facie* case of obviousness under §103 with respect to Claim 1, for the following reasons.

THE PRIOR ART MUST TEACH ALL CLAIM LIMITATIONS UNDER §103

The provisions of MPEP §2142 specify with respect to §103 that:

To establish a *prima facie* case of obviousness . . . the prior art reference (or references when combined) must teach or suggest all the claim limitations. (Emphasis added).

The PTO considers this requirement to be important, as evidenced by the fact that this exact language appears not only in MPEP §2142, but also in other sections of the MPEP, including MPEP §706.02(j) and MPEP §2143. As noted earlier, Applicants' Claim 1 recites:

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- (a) performing an oxygen ashing step to remove said patterned photoresist layer;
 - (b) cleaning a residue from said opening by performing a halogen containing plasma step; and
 - (c) etching said cleaned opening in said substrate;
- wherein steps (a), (b), and (c) are performed in the same process chamber of said etching tool.

The Office Action admits (at lines 4-6 on page 4) that Chen does not disclose use of a single process chamber to carry out three successive steps that are comparable to steps (a), (b) and (c) in Applicants' Claim 1. The Office Action therefore turns to the embodiment shown in Figure 6 of Yeh. In particular, the Office Action asserts that Figure 6 teaches use of a single process chamber to carry out three successive steps that are respectively comparable to steps (a), (b) and (c) in Applicants' Claim 1. However, this is not even remotely correct. As discussed earlier in these remarks, steps 4 and 5 in Figure 6 of Yeh constitute an oxygen ashing process that removes a photoresist. The Examiner apparently believes the oxygen ashing in steps 4 and 5 of Figure 6 is equivalent to the oxygen ashing recited in step (a) of Applicants' Claim 1. However, Figure 6 of Yeh does not show two additional steps that are carried out after steps 4 and 5, and that are comparable to steps (b) and (c) in Applicants' Claim 1. Consequently, since Figure 6 of Yeh fails to show process steps comparable to steps (b) and (c) of Applicants' Claim 1, there is absolutely no basis for the assertion in the Office Action that Figure 6 of Yeh shows use of a single process chamber to carry out three successive process steps that are respectively comparable to steps (a), (b) and (c) of Applicants' Claim 1.

The Office Action then turns to Yang, stating that Yang teaches the use of a single process chamber for (1) an oxygen ashing step followed by (2) an etching step. As best understood, the Examiner considers these two steps to be respectively comparable to (1) the oxygen ashing recited in step (a) of Applicants' Claim 1, and (2) the etching recited in step (c) of

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Applicants' Claim 1. However, even the Office Action does not assert that, between Yang's ashing and etching steps, Yang could employ a halogen-containing plasma, much less that the ashing step, a halogen plasma step, and the etching step could all be successively carried out in the same process chamber.

Summarizing, the Office Action admits that Chen does not teach use of a single process chamber for three successive process steps that are respectively comparable to steps (a), (b) and (c) in Applicants' Claim 1. Moreover, Applicants respectfully submit that neither Yeh nor Yang teaches use of a single process chamber for three successive process steps that are respectively comparable to steps (a), (b) and (c) recited in Applicants' Claim 1. Accordingly, even if Chen is modified in view of either Yeh or Yang, as proposed by the Examiner, the result would not be the subject matter that is recited in Applicants' Claim 1. Claim 1 is therefore not rendered obvious under §103 by Chen, Yeh and Yang, and notice to that effect is respectfully requested.

Dependent Claims

Claims 2 and 5-10 depend from Claim 1, and are also believed to be distinct from the art of record, for example for the same reasons discussed above with respect to Claim 1.

Conclusion

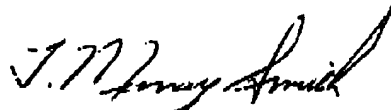
Based on the foregoing, it is respectfully submitted that all of the pending claims are fully allowable, and favorable reconsideration of this application is therefore respectfully requested. If the Examiner believes that examination of the present application may be advanced in any way by a telephone conference, the Examiner is invited to telephone the undersigned attorney at 972-739-8647.

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Although Applicants believe that no additional fees are due, the Commissioner is hereby authorized to charge any fee required by this paper, or to credit any overpayment, to Deposit Account No. 08-1394 of Haynes and Boone, LLP.

Respectfully submitted,



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Enclosures: None

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